CLAIMS

1. A system to treat wastewater, comprising:

a wastewater tank having an inlet and an outlet, the inlet fluidly connected to a wastewater point of entry;

a treatment agent inlet fluidly connected to the wastewater tank outlet, the treatment agent inlet fluidly connected to a treatment agent point of entry;

a rheological sensor; and

a controller connected to the rheological sensor, the controller programmed to regulate a flow of treatment agent through the treatment agent inlet.

2. The system to treat wastewater of claim 1, wherein the rheological sensor comprises a viscometer.

3. The system to treat wastewater of claim 2, wherein the viscometer is a rotational viscometer.

4. The system to treat wastewater of claim 1, wherein the rheological sensor is constructed and arranged to continuously measure a viscosity of a fluid.

5. The system to treat wastewater of claim 1, wherein the rheological sensor is fluidly connected to at least one of the wastewater tank inlet and the wastewater tank outlet.

6. The system to treat wastewater of claim 1, wherein the treatment agent point of entry is a flocculating agent point of entry.

7. The system to treat wastewater of claim 1, wherein the controller is connected to at least one of a valve and a pump that regulates the flow of treatment agent through the treatment agent inlet.

8. The system to treat wastewater of claim 1, further comprising a filtration apparatus fluidly connected to the wastewater tank outlet.

9. The system to treat wastewater of claim 1, further comprising a centrifuge fluidly connected to the wastewater tank outlet.

10. A system to treat wastewater, comprising:

a wastewater tank having an inlet and an outlet, the inlet fluidly connected to a wastewater point of entry;

means for dewatering wastewater having an inlet fluidly connected to the wastewater tank outlet;

a treatment agent inlet fluidly connected to the means for dewatering wastewater inlet and a treatment agent point of entry;

a rheological sensor; and

a controller connected to the sensor, the controller programmed to regulate a flow of treatment agent through the treatment agent inlet.

11. The system to treat wastewater of claim 10, wherein the at least one outlet comprises a solid-rich outlet.

12. The system to treat wastewater of claim 10, wherein the at least one outlet comprises a liquid-rich outlet.

13. The system to treat wastewater of claim 10, wherein the rheological sensor comprises a viscometer.

14. The system to treat wastewater of claim 10, wherein the rheological sensor is constructed and arranged to continuously measure a viscosity of a fluid.

15. The system to treat wastewater of claim 10, wherein the rheological sensor is fluidly connected to at least one of the wastewater tank inlet, the wastewater tank outlet, and the means for dewatering wastewater outlet.

16. The system to treat wastewater of claim 10, wherein the treatment agent point of entry is a flocculating agent point of entry.

17. The system to treat wastewater of claim 10, wherein the controller is connected to at least one of a valve and a pump that regulates the flow of treatment agent through the treatment agent inlet.

18. The system to treat wastewater of claim 10, wherein the means for dewatering wastewater comprises a filtration apparatus.

19. The system to treat wastewater of claim 10, wherein the means for dewatering wastewater comprises a centrifuge.

20. A method to treat wastewater, comprising:

providing a wastewater stream;

adding a treatment agent to the wastewater stream;

continuously measuring a rheological property of the wastewater stream; and

adjusting a flowrate of the treatment agent based on the rheological property.

21. The method to treat wastewater of claim 20, wherein the step of measuring a rheological property comprises measuring a viscosity.

22. The method to treat wastewater of claim 20, wherein the step of adding a treatment agent comprises adding a flocculating agent.

23. The method to treat wastewater of claim 20, wherein the step of adjusting a flowrate comprises adjusting a flowrate based on an optimization algorithm.

24. The method to treat wastewater of claim 20, wherein the step of adjusting a flowrate comprises adjusting a flowrate based on a record of the rheological property of the wastewater stream.

25. The method to treat wastewater of claim 20, wherein the step of adjusting a flowrate of the treatment agent occurs before the step of adding the treatment agent to the wastewater stream.

26. A method to treat wastewater, comprising:

providing a wastewater stream;

adding a treatment agent to the wastewater stream to produce a treated stream;

separating the treated stream into a liquid-rich stream and a solid-rich stream;

continuously measuring a rheological property of at least one of the liquid-rich stream and the solid-rich stream; and

adjusting a flowrate of the treatment agent based on the rheological property.

27. The method to treat wastewater of claim 26, wherein the step of measuring a rheological property comprises measuring a viscosity.

28. The method to treat wastewater of claim 26, wherein the step of adding a treatment agent comprises adding a flocculating agent.

29. The method to treat wastewater of claim 26, wherein the step of adjusting a flowrate of the treatment agent occurs before the step of adding the treatment agent to the wastewater stream.

30. The method to treat wastewater of claim 26, wherein the step of separating the treated stream comprises separating the treated stream using a centrifuge.

31. The method to treat wastewater of claim 26, wherein the step of separating the treated stream comprises separating the treated stream using a filtration apparatus.